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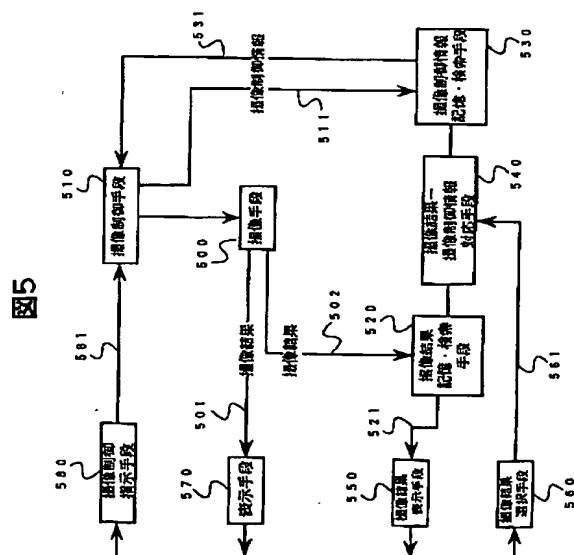
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(54) 【発明の名称】 撮像手段の制御方法および撮像制御装置

(57) 【要約】

【目的】対話形式での処理によって撮像装置を制御する手段、撮像装置の監視箇所の見失いからの回復を支援する手段を提供すること。

【構成】撮像対象を撮像し画像情報を得る撮像手段と、撮像方向、撮像範囲を含む撮像制御パラメータを設定する制御パラメータ設定手段と、設定されたパラメータにしたがって、前記撮像手段を制御する撮像制御手段と、得られた画像情報を少なくとも表示する表示手段を有して構成される撮像制御装置において、設定したパラメータに、当該パラメータに従って撮像された画像情報を対応付けて、少なくとも 1 以上記憶する記憶手段と、記憶した画像情報を前記表示手段に表示させる表示処理手段と、操作者が該表示処理手段によって表示された画像情報を指示する指示手段と、指示された画像情報に対応するパラメータを前記記憶手段を検索して求める検索手段と、求められたパラメータに対応する制御信号を生成し、前記撮像手段を制御する制御手段とを備えることを特徴とする撮像制御装置。



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CLAIMS

[Claim(s)]

[Claim 1] An image pick-up control parameter including the image pick-up direction of an image pick-up means and the image pick-up range is set up. It is the control approach of an image pick-up means to control an image pick-up means according to the set-up parameter. The image information picturized by the set-up parameter according to the parameter concerned is matched. Memorize at least one or more, and further, when the image information which displays the memorized image information on the display means, and was displayed on the display means is directed by the operator, said parameter corresponding to the directed image information concerned is used. The control approach of the image pick-up means characterized by controlling an image pick-up means.

[Claim 2] An image pick-up means to picturize the object for an image pick-up and to obtain image information, and a control-parameter setting-out means to set up an image pick-up control parameter including the image pick-up direction and the image pick-up range. In the image pick-up control unit constituted according to the set-up parameter by having the image pick-up control means which controls said image pick-up means, and a display means to display at least the image information sent from the image pick-up means. A storage means to match the image information picturized by the set-up parameter according to the parameter concerned, and to memorize at least one or more. A display-processing means to display the memorized image information on said display means, and a directions means by which an operator directs the image information displayed by this display-processing means. It is the image pick-up control unit characterized by having a retrieval means to search said storage means and to ask for the parameter corresponding to the directed image information, and for said image pick-up control means generating the control signal corresponding to the called-for parameter, and controlling said image pick-up means.

[Claim 3] The control approach of the image pick-up means characterized by displaying the image pick-up image by the image pick-up means just before directions by said operator are performed on said display means further in claim 1.

[Claim 4] It is the image pick-up control unit with which it is characterized by having this time display-processing section and the image pick-up image by said image pick-up means just before directions by said directions means are performed displaying this this time display-processing section on said display means further in claim 2.

[Claim 5] It is the image pick-up control unit which said image pick-up means is at least one of a CCD camera, an infrared camera, and the industrial use cameras that output the RGB code according to the object for an image pick-up in claim 2, and is characterized by the image pick-up control parameter which said control-parameter setting-out means sets up being at least one of the image pick-up direction, the rate of a zoom, and drawing further.

[Claim 6] It is the image pick-up control unit which possesses the operation control unit which controls operation of claims 2 and 4 and the image pick-up control unit of a publication and the plant which performs predetermined processing, and this plant 5 either, and is characterized by the object for an image pick-up of said image pick-up means being said plant.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention controls image pick-up equipment by processing by dialogic operation, and relates to the technique of offering further a means to offer exchange of recovery from losing sight of the monitor part of image pick-up equipment etc.

[0002]

[Description of the Prior Art] Generally, as a means to control image pick-up equipments, such as a CCD camera and an industrial use camera, by dialogic operation, as indicated to JP,62-226786,A, the image pick-up direction of the image pick-up equipment which is each control parameter is shown, the image pick-up direction of image pick-up equipment is changed for every directions unit, and there is the approach of controlling image pick-up equipment on a target serially.

[0003] Moreover, the group of two or more control parameters currently prepared beforehand is chosen, and there is the approach of using the control parameter concerned and controlling image pick-up equipment by setting up a control parameter as indicated by JP,61-73091,A.

[0004] moreover, as an approach of associating and memorizing the control information and the image pick-up result of image pick-up equipment, and generally, reproducing an image pick-up result from the content of storage further For example, as indicated by the 8th human interface symposium JUUMU collected works (1992) "application [to ESUKU top image work of virtual studio - a virtual reality] -" The control information and the image pick-up result of image pick-up equipment are matched, it memorizes succeeding a time amount train, and there is a means to reproduce the image pick-up result corresponding to desired control information based on the content of storage, further.

[0005]

[Problem(s) to be Solved by the Invention] When controlling the image pick-up direction of image pick-up equipment, the rate of a zoom, etc. and supervising the image pick-up result at that time, depending on the method of setting out of the control parameter of image pick-up equipment When a field of view changes rapidly or whenever [for an image pick-up / detail] increases too much with the zoom of the degree of pole, it grasps which location for [picturized] a current monitor part is, and there is a problem of stopping going out and missing the image pick-up point.

[0006] In the control means in the dialogic operation of the image pick-up equipment in the above-mentioned conventional technique, it is only that to which the conditions (for example, the image pick-up direction etc.) of image pick-up equipment are changed, and it is impossible to reproduce the content of storage based on the control parameter concerned in to memorize the control parameter which shows the condition of the image pick-up equipment when picturizing in the past ***.

[0007] Moreover, since matching of the control parameter of an image pick-up and an image pick-up result in the above-mentioned conventional technique is simply performed continuously in the time amount train, direct matching of an image pick-up result to a certain control parameter has not been performed. Therefore, it is impossible to perform selection of the past image pick-up control parameter and playback.

[0008] therefore, in control of a series of image pick-up means, in order to recover an image pick-up means from losing sight of a monitor part The control parameter and the data including an image pick-up result which reset the control parameter of image pick-up equipment to the suitable value, used the control parameter concerned which reset, and redid control of an image pick-up means, or were stored in time amount train by going back serially The picturized body finds out the control parameter whose recognition is attained, uses the value, and cannot but recontrol an image pick-up means.

[0009] Then, when the object of this invention makes the control parameter for controlling an image pick-up means correspond, manages an image pick-up result, and is to offer a means to control image pick-up equipment by dialogic operation and for example, an image pick-up means misses a monitor part with this means, it becomes possible to support recovering an image pick-up means from the losing sight.

[0010]

[Means for Solving the Problem] Since the above-mentioned object is attained, the following means can be considered.

[0011] An image pick-up control parameter including the image pick-up direction of an image pick-up means and the image pick-up range is set up. It is the control approach of an image pick-up means to control an image pick-up means according to the set-up parameter. The image information picturized by the set-up parameter according to the parameter concerned is matched. It is the control approach of an image pick-up means to memorize at least

one or more, to use said parameter corresponding to the directed image information concerned when the image information which displays the image information memorized further on the display means, and was displayed on the display means is directed by the operator, and to control an image pick-up means.

[0012] Moreover, the following means are also considered.

[0013] Namely, an image pick-up means to picturize the object for an image pick-up and to obtain image information and a control-parameter setting-out means to set up an image pick-up control parameter including the image pick-up direction and the image pick-up range, In the image pick-up control unit constituted according to the set-up parameter by having the image pick-up control means which controls said image pick-up means, and a display means to display at least the image information sent from the image pick-up means A storage means to match the image information picturized by the set-up parameter according to the parameter concerned, and to memorize at least one or more, A display-processing means to display the memorized image information on said display means, and a directions means by which an operator directs the image information displayed by this display-processing means, It is the image pick-up control unit which it has a retrieval means to search said storage means and to ask for the parameter corresponding to the directed image information, and said image pick-up control means generates the control signal corresponding to the called-for parameter, and controls said image pick-up means.

[0014]

[Function] First, the image pick-up result for every control parameter of the set-up image pick-up is matched with a control parameter, and is memorized. Under the present circumstances, the image pick-up result corresponding to a control parameter is displayed in the shape of a menu.

[0015] And they are made selectable in dialogic operation and the control parameter corresponding to the selected image pick-up result is searched. Furthermore, according to the parameter concerned, the image pick-up control signal for controlling an image pick-up means is generated, and an image pick-up means is controlled. And the image pick-up result by the image pick-up means is displayed.

[0016] Thus, the image pick-up means corresponding to the control parameter set up in the past is controlled by dialogic operation, and it becomes possible to display an image pick-up result.

[0017] That is, it becomes possible by matching the control parameter and image pick-up result of an image pick-up to control an image pick-up means by the control parameter when obtaining the past image pick-up result by dialogic operation.

[0018]

[Example] Hereafter, one example of this invention is explained with reference to a drawing.

[0019] In addition, the vocabulary which comes out in this explanation is beforehand outlined for easy-izing of invention understanding.

[0020] In this invention, "image pick-up equipment" points out a device required in order to catch as an image the object of the equipment for catching as an image the object of the device which catches and visualizes for example, the camera for visible-ray photography, the camera for infrared photography, the camera for roentgenography, and an ultrasonic echo and a flash plate, an electric light, an X-ray irradiation machine, a sonicator, etc.

[0021] Moreover, "an image pick-up" means using above-mentioned image pick-up equipment, and incorporating the image of an object.

[0022] The thing which changed into the electrical signal etc. the image obtained by the set of the image incorporated by the image pick-up and **** images and the image pick-up and which carried out the thing (for example, coding), and the set of these signs are called an "image pick-up result."

[0023] In order to specify an image pick-up result as a meaning, it attaches to each image pick-up result, for example, the thing of information, such as a numeric value and a character string, is called "the identifier of an image pick-up result."

[0024] With "image pick-up control", image pick-up equipments, such as a camera, are put on the base which drives the equipment concerned. The revolution [**** / moving image pick-up equipment to a horizontal direction, a perpendicular direction, a cross direction, etc.] centering on the vertical direction, It is performing the revolution centering on a longitudinal direction, the revolution centering on a cross direction, etc. By changing a location, a direction, etc. to picturize, or equipping with the equipment which can change the various set points for carrying out modification control of the function which image pick-up equipments, such as amplification, a cutback, and drawing, have, and performing zoom-in, a zoom down, etc. It says controlling by making a change of modification of the image pick-up range, closing motion of drawing, and the closing motion time amount of a shutter etc. to change the qualities of an image, such as brightness of the image picturized.

[0025] "Image pick-up control information" is information given to the equipment for changing the actuation base which carried image pick-up equipment, and the various set points which image pick-up equipment has in order to perform the above image pick-up control, and it is also only called a control parameter.

[0026] In order to specify image pick-up control information as a meaning, it adds to each image pick-up control information, for example, the thing of information, such as a numeric value and a character string, is called "the identifier of image pick-up control information (control parameter)."

[0027] In order to perform image pick-up control, input units, such as a keyboard and a mouse, are used and the actuation which gives predetermined directions is called "image pick-up control lead."

[0028] In image pick-up control lead, the signal given from input units, such as a keyboard and a mouse, is called "image pick-up control-lead information."

[0029] The conditions of and determining the quality of the direction which for example, image pick-up equipment picturizes and to picturize, and the image to picturize, such as the various set points equipped with image pick-up equipment possible [setting out], are called "the condition of image pick-up equipment."

[0030] Now, the outline of the image pick-up control means which starts this invention at drawing 1 is shown.

[0031] In drawing 1, the camera with which 170 photos a visible-ray image, and 180 It has a function for changing drawing of a camera, a zoom, shutter speed, etc. The camera base for rotating a camera to a horizontal, perpendicularity, migration to the upper and lower sides, the direction of an azimuth, the direction of an elevation angle, and a longitudinal direction and 190 The object of photography and 110 the display for visible graphic display and 140 What displayed the current image currently photoed with the camera 170 for visible-ray image photography, and 150 What gathered (it is also only called a set display), and 160 what reduced and displayed the image photoed in the past with the visible-ray image photography camera 170 From from, the pointer for choosing one and 120 among the set displays 150 displayed in the shape of a menu The keyboard for carrying out image pick-up control lead of the camera base 180 for controlling a camera 170 and 130 The mouse which operates a pointer 160, and 100 It searches with conversion to the control signal of a photography control-lead input, and the transfer to a control unit and storage of a photography image. It is a generalization system for realizing various kinds of functions, such as a display of matching with storage of the control information of photography, retrieval and a photography image, and the control information of photography, and the past photography image, and selection, a display of a current photography image.

[0032] The camera base 180 has a power plant for, for example, driving the table (for example, what is necessary being for the three-dimension migration stage for optical measurement etc. just to realize) for carrying the camera which can rotate and move in three dimension, the modification means for changing the various set points of a camera, and tables (for example, a revolution machine, a switchgear, depression equipment, etc.) and a modification means, and is constituted. What is necessary is to realize an electric motor etc. and its actuation circuit, and just to constitute a power plant by driving an electric motor, by impressing a predetermined electrical potential difference to an actuation circuit, according to a control parameter so that only the specified quantity may move the moving part with which a power plant is equipped.

[0033] The generalization system 100 is realizable with storage, such as RAM and a magnetic disk drive, CPU and ROM (the program for performing predetermined processing is built in), various kinds CMOS, etc.

[0034] The generalization system 100 usually incorporates the image information for [which is photoed with a camera 170 / 105] photography, and shows it on the display 110 (140).

[0035] Moreover, if the control information of the purport to which 100 moves the location of the camera base 180 etc. through a keyboard 120 is inputted, it changes into the signal for control for controlling each of that inputted control information for the location of a camera base etc., and control corresponding to the input of delivery and control information for the changed signal concerned performs on the camera base 180, and, as for a generalization system, the photography condition of a camera will change into it.

[0036] Simultaneously, the generalization system 100 memorizes the signal for control of a camera base, further, also memorizes a video signal, and matches and memorizes the group and video signal of the signal for control of a camera base.

[0037] Similarly, whenever the control parameter of a camera is inputted through a keyboard 120, the generalization system 100 memorizes the signal for camera control, memorizes the video signal in the event, and matches and memorizes further the signal for camera control and video signal which were memorized.

[0038] If the input of the purport which directs display initiation of the memorized image from a keyboard 120 is performed, the generalization system 100 is changed so that the reduced display of the memorized video signal may be carried out, on a display 110, as shown in drawing 1, more than one are put in order and it displays, and although the image photoed in the past was reduced, the set display 150 will be displayed.

[0039] Moreover, with the pointer 160 operated with a mouse 130, if a certain image in display 150 is directed, the generalization system 100 will distinguish the image corresponding to the directed location.

[0040] And the signal for control for controlling a camera base memorized by matching with the selected image is searched, and delivery and the photography condition of a camera are controlled on a camera base.

[0041] Thereby, a keyboard is used and it becomes possible to control a camera base.

[0042] That is, a camera base will be controlled by the control parameter corresponding to the selected image. The control parameter which is controlling the photography condition of a camera when the image is photoed by choosing the repeat display of the acquired image using a mouse when it becomes possible to use again the same control parameter as the control parameter used in the past and the control parameter concerned is used in the past is used, and it becomes possible to perform the same control as having carried out in the past.

[0043] Next, the functional block diagram showing the outline of the flow of processing of the image pick-up control which starts this invention at drawing 2 is shown.

[0044] The image pick-up result display 240 from which the image pick-up section 250 usually received delivery and an image pick-up result for the image pick-up result to the image pick-up result display 240 shows the image pick-up result.

[0045] If image pick-up control-lead information is inputted to the actuation control-lead input section 200, this will be changed into image pick-up control information, and it will send to the image pick-up control section 210.

[0046] The image pick-up control section 210 which received image pick-up control information performs image pick-up control to the image pick-up section 250. At this time, image pick-up control information is memorized to coincidence, and delivery and the information concerned are memorized in the image pick-up control information storage section 220.

[0047] Under the present circumstances, the image pick-up control information storage section 220 sends the identifier of image pick-up control information to the image pick-up control information-image pick-up result corresponding point 290 which is a corresponding point of image pick-up control information and an image pick-up

result.

[0048] The image pick-up section 250 in which image pick-up control was directed memorizes delivery and the result concerned for an image pick-up result in the image pick-up result storage section 240. Under the present circumstances, the image pick-up result storage section 270 sends the identifier of an image pick-up result to the image pick-up control information-image pick-up result corresponding point 290.

[0049] Moreover, the image pick-up result storage section 250 sends the memorized image pick-up result to the image pick-up result repeat display section 270. The image pick-up result repeat display section 270 which received the image pick-up result displays an image pick-up result.

[0050] The image pick-up control information-image pick-up result corresponding point 290 which received the identifier of image pick-up control information and the identifier of an image pick-up result performs matching with the identifier of image pick-up control information, and the identifier of an image pick-up result.

[0051] If selection of an image pick-up result is directed to the image pick-up result currently displayed on the image pick-up result repeat display section 270, the identifier of the image pick-up result corresponding to the image pick-up result chosen as the image pick-up control information-image pick-up result corresponding point 290 will be sent.

[0052] The image pick-up control information-image pick-up result corresponding point 290 which received the identifier of an image pick-up result sends the corresponding identifier of image pick-up control to ejection and the image pick-up control information retrieval section 230.

[0053] The image pick-up control retrieval section 230 which received the identifier of image pick-up control information searches image pick-up control information, and sends ejection and the information concerned to the image pick-up control section 210.

[0054] Furthermore, the image pick-up control section 210 which received image pick-up control information performs image pick-up control to the image pick-up section 250 according to the received image pick-up control information.

[0055] It enables this to process image pick-up control, correlation of the image pick-up result picturized at the event, storage of each information and the display of an image pick-up result, retrieval of the image pick-up control which selection-receives and corresponds, playback of image pick-up control, etc.

[0056] Drawing 3 is a functional block diagram for explaining processing of the image pick-up control information concerning this invention.

[0057] The image pick-up control information input section 300 into which image pick-up control information was inputted sends image pick-up control information to the image pick-up control information-identifier corresponding point 310 to which the identifier of image pick-up control information and image pick-up control is made to have corresponded.

[0058] The image pick-up control information-identifier corresponding point 310 which received image pick-up control information generates the identifier of the image pick-up control information of a proper to the received image pick-up control information.

[0059] The image pick-up control information-identifier corresponding point 310 which generated the identifier of image pick-up control information sends the identifier of image pick-up control information and the image pick-up control information generated to it to image pick-up control information and the identifier registration section 320.

[0060] The image pick-up control information and the identifier registration section 320 which received the identifier of image pick-up control information and image pick-up control information match and memorize each information, and sends the identifier of image pick-up control information to the image pick-up control information identifier output section 330.

[0061] The image pick-up control information identifier output section 330 which received the identifier of image pick-up control information outputs the identifier of image pick-up control information.

[0062] Thereby, to the input of image pick-up control information, generation of the identifier of the image pick-up control information of a proper, matching with image pick-up control information and its identifier, and storage of the matched information are performed, and it becomes possible to output the identifier of image pick-up control information.

[0063] Drawing 4 shows the functional block diagram for explaining processing of the image pick-up result concerning this invention.

[0064] The image pick-up result input section 400 into which the image pick-up result was inputted sends image pick-up control information to the image pick-up result-identifier corresponding point 410.

[0065] The image pick-up result-identifier corresponding point 410 which received the image pick-up result generates the identifier of the image pick-up result of a proper to the received image pick-up result.

[0066] The image pick-up result-identifier corresponding point 410 which generated the identifier of an image pick-up result sends the identifier of an image pick-up result and the image pick-up result generated to it to an image pick-up result and the identifier registration section 420.

[0067] The image pick-up result and the identifier registration section 420 which received the identifier of an image pick-up result and an image pick-up result match and memorize each information, and an image pick-up result is sent to the image pick-up result output section 440, and it sends the identifier of delivery and an image pick-up result to the image pick-up result identifier output section 430. The image pick-up result output section 440 which received the image pick-up result outputs an image pick-up result. Furthermore, the image pick-up result identifier output section 430 which received the identifier of an image pick-up result outputs the identifier of an image pick-up result.

[0068] Thereby, to the input of an image pick-up result, generation of the identifier of an image pick-up result

proper, matching with an image pick-up result and an identifier, and storage of the matched information are performed, and it becomes possible to output an image pick-up result and its identifier.

[0069] Drawing 5 is the explanatory view of the example of a configuration of the image pick-up control means concerning this invention.

[0070] An image pick-up control means for 500 to perform various kinds of control to the image pick-up means 500, as for 510 and 580 to an image pick-up means An image pick-up control-lead means to direct image pick-up control to the image pick-up control means 510, and 570 A display means to display the image which is carrying out the current image pick-up, and 520 Image pick-up result storage / retrieval means for searching storage of the image pick-up result obtained by the image pick-up means 500 and the image pick-up result memorized in the past and 530 Image pick-up control information storage / retrieval means for searching storage of the image pick-up control information about the image pick-up control performed in the image pick-up control means 510 and the image pick-up control information the past was remembered to be, and 540 The means corresponding to the image pick-up result-image pick-up control information which matches an image pick-up result and image pick-up control information, and 550 The image pick-up result display means for displaying the image pick-up result memorized in said image pick-up result storage / retrieval means 520 and 560 show the image pick-up result selection means which makes selectable the image pick-up result displayed by the image pick-up result display means 550 by dialogic operation.

[0071] Hereafter, the main thing of the above-mentioned component is explained.

[0072] The image pick-up means 500 For example, an optical lens (optical system with a combination lens is desirable), Have devices, such as a CCD component, an infrared lens, an X-ray sensor, and an ultrasonic sensor, and are constituted. The equipment which changes the camera for visible-ray photography, the camera for infrared photography, the camera for roentgenography, and an ultrasonic echo into a visible image, A means to generate two-dimensional information realizes according to the optical information by images, such as a means which catches the image of a certain object and is made into an electrical signal, and sensitized paper, a sensitive film, a thermal paper.

[0073] The image pick-up control means 510 For example, the base which can move front and rear, right and left for changing the location of image pick-up equipment, and the direction to picturize in three dimension, The base which it can go up and down, the base which enables the revolution centering on the vertical direction, the base which enables the revolution centering on a longitudinal direction, The base which enables the revolution centering on a cross direction, the revolution machine for changing the set point in the setting-out section with which image pick-up equipment is equipped, a switch, a slider, depression equipment, etc. realize.

[0074] The above-mentioned base which constitutes the image pick-up control unit 510, a revolution machine, a switch, and depression equipment are equipped with the driving means and actuation circuit of an electric motor etc., according to a control parameter, it is made the electrical potential difference impressed to the actuation circuit, and an actuation circuit drives a driving means as **. And what is necessary is just to make it the configuration which acts so that the moving part of a driving means may make predetermined actuation perform to an above-mentioned base, a revolution machine, a switch, depression equipment, etc.

[0075] The image pick-up control-lead means 580 has a means to input image pick-up control lead, and a means to change directions of image pick-up control into image pick-up control information, and is constituted. A means to input image pick-up control lead is realizable with the object which can direct the control to image pick-up control units, such as a keyboard, a touch panel, a mouse, a tablet, a trackball, a joy stick, and SUIRAIDA.

[0076] Moreover, a means to change image pick-up control lead into image pick-up control information In order to change the signal from the input means of image pick-up control lead into the signal of image pick-up control information First, the storage means realized with RAM for memorizing the procedure of signal transformation, ROM, a magnetic disk, etc., Next, it has a means (for example, electron devices, such as CPU, ROM (the program which performs predetermined processing is built in beforehand), and various kinds CMOS, realize) for performing transform processing of a signal, and is constituted.

[0077] The display means 570 is realized by the various displays which can display image pick-up results from image pick-up equipment, such as CRT, an EL display, and a liquid crystal display.

[0078] Image pick-up result storage / retrieval means 520 has a means to attach an identifier to the means and ** which memorize an image pick-up result, and each image pick-up result, and to perform matching with an image pick-up result, and is constituted.

[0079] A means to memorize an image pick-up result is realized by RAM, a magnetic tape, the magnetic disk, etc. Moreover, as long as it is a storage means by which transform processing of the image obtained by the image pick-up means 500 can be carried out to an electrical signal, and this electrical signal by which transform processing was carried out can be memorized, you may be what kind of thing.

[0080] Moreover, a means to add an identifier to an image pick-up result, and to perform matching with an image pick-up result is realized by electron devices, such as CPU, ROM (the program which performs predetermined processing beforehand is built in), RAM, and various kinds CMOS.

[0081] Image pick-up control information storage / retrieval means 530 has a means to memorize image pick-up control information, and a means to add an identifier to each image pick-up control information, and to perform matching with image pick-up control information, and is constituted.

[0082] A means to memorize image pick-up control information is realized by RAM, a magnetic tape, the magnetic disk, etc.

[0083] The means which adds an identifier to image pick-up control information, and is matched with image pick-up control information is realized by electron devices, such as CPU, ROM (the program which performs predetermined

processing beforehand is built in), RAM, and various kinds CMOS.

[0084] The means 540 corresponding to image pick-up result-image pick-up control information is realized by electron devices, such as CPU, ROM (the program which performs predetermined processing beforehand is built in), RAM, and various kinds CMOS. It is also desirable to use a magnetic disk drive instead of RAM.

[0085] In addition, image pick-up result storage / retrieval means 520, image pick-up control information storage / retrieval means 530, and the means 540 corresponding to image pick-up result-image pick-up control information are classifying the field to memorize, and may consist of same storage means.

[0086] In order to display two or more image pick-up results, the image pick-up result display means 550 has a means to change the means and image pick-up result which determine the display-position information on each image pick-up result into the information for displaying on a display means, a means to memorize the display-position information on an image pick-up result, and a means to display an image pick-up result, and is constituted.

[0087] A means to determine display-position information is a means for computing the location on the display screen of an image pick-up result, magnitude, etc., for example, is realized by electron devices, such as CPU, ROM (the program which performs predetermined processing beforehand is built in), RAM, and various kinds CMOS.

[0088] A means change an image pick-up result into the information for displaying on the display screen is a means for changing into the information for displaying on the display screen according to the positional information of an image pick-up result computed by means to determine display-position information, for example, is realized by electron devices, such as CPU, ROM (the program which performs predetermined processing beforehand is built in), RAM, and various kinds CMOS. A means to memorize the positional information of an image pick-up result is realizable with storage means, such as RAM and a magnetic disk drive.

[0089] A means to display an image pick-up result has a means to mix two or more video signals like super in POSU equipment, and the above-mentioned display means 580 and the same means, and is constituted.

[0090] In addition, it is also desirable to share the display means of this image pick-up result with the display means 580.

[0091] The image pick-up result selection means 560 has a means to input the positional information on the display screen of a display, and the means which takes out the image pick-up result currently displayed on the input location, and is constituted.

[0092] A means to input the positional information on an indicating equipment is realizable with a keyboard, a mouse, a touch panel, a tablet, a joy stick, a trackball, a slider, etc.

[0093] The means which takes out the image pick-up result currently displayed on the directed location has the means for matching and memorizing the data of varieties realized by RAM, a magnetic disk drive, etc., and a means (the means concerned is realized by electron devices, such as CPU, ROM (the program which performs predetermined processing beforehand is built in), RAM, and various kinds CMOS.) for performing selection of those data, and is constituted.

[0094] Now, let the image pick-up means 500 be the CCD camera for visible image photography which can change a zoom, drawing, and shutter speed in this example.

[0095] Moreover, it constitutes from a camera base which can be controlled by the electrical signal given to this source of power by making a servo motor etc. into the source of power in the image pick-up control means 510 to change the set point set up in order to realize modification of the bearing of the exposure axis of a three dimension, a location, etc., and the camera function of various kinds further, such as a zoom, drawing, and shutter speed.

[0096] Moreover, the keyboard of a typewriter mold, the display means 570, and the image pick-up result display means 550 consist of bit mapped displays for the image pick-up control-lead means 580.

[0097] Moreover, image pick-up result storage / retrieval means 520, the means 540 corresponding to image pick-up result-image pick-up control information, and image pick-up control information storage / retrieval means 530 consist of magnetic disk drives.

[0098] Furthermore, the image pick-up result selection means 560 is constituted from a mouse, it displays at a time the image photoed with a camera whenever it controls a camera by the keyboard on five bottoms of screen on a display, and the example which controls a camera using the same control parameter as the event of making the display image concerned selectable with a mouse, and photoing the selected image is explained.

[0099] Now, through a cable 501, the video signal picturized by the CCD camera which is the image pick-up means 500 is sent to the bit mapped display which is the display means 570, and is usually displayed as a photography image.

[0100] "h" of the keyboard which is the image pick-up control-lead means 580, "j", "k", The key of "l" is assigned to the directions which shake a camera in each right direction the left, the bottom, and a top, respectively. The left, the right, a front, and the back, the key of "w", "e", "f", "b", "p", and "n" is assigned to the directions which move a camera in each direction of the upper bottom, and is assigned to directions of a revolution of "1" and "2" of the camera to the left and the right, respectively.

[0101] If a key input is performed, the signal which shows each key will be sent to the camera base which is the image pick-up control means 510 through a cable 581.

[0102] In order to perform actuation to which the camera base which is the carrier beam image pick-up control means 510 is assigned to the key in the signal which a key shows and to change the location of the direction of a camera, and a camera, or the set point of a camera, it changes into the signal which drives each servo motor of a camera base from the signal which the inputted key shows, and a servo motor is driven.

[0103] Under the present circumstances, delivery and this are memorized as photography control information to the magnetic disk drive 530 which is image pick-up control information storage / retrieval means 530 through a cable 511 about the signal for driving each servo motor, and the serial number is given to the memorized photography

control information.

[0104] Moreover, simultaneously, the photography video signal at that time is memorized as delivery and an image result through a cable 502 also to the magnetic disk drive 520 which is image pick-up result storage / retrieval means, and the serial number is attached to the memorized photography result.

[0105] Moreover, the above-mentioned serial number simultaneously attached to the image result and photography control information which were memorized by the magnetic disk 520 and the magnetic disk 530 is memorized to a magnetic disk 540.

[0106] Furthermore, simultaneously, through a cable 521, it reduces only to the magnitude on a par with delivery and five bottoms of screen, and the memorized photography result displays the reduced image on the bit mapped display which is also the image pick-up result display means 550 one of five pieces. This display is performed one by one with time amount progress if needed. Under the present circumstances, the displayed location is memorized. If the memory location is a means by which positional information is memorizable, any are sufficient as it. In addition, it cannot be overemphasized that said five pieces are only one example.

[0107] Moreover, the display of the past image pick-up result uses the function of super in POSU, and should just display it in piles to displays 550 and 570 on the image by the video signal sent one by one from a camera 500.

[0108] If one of five cutback images currently displayed on a display 550 and 570 is chosen with the mouse which is the image pick-up result selection means 560, the location which the mouse directed detects and the processing which distinguishes the image which performs the comparison with the display position of the cutback photography image memorized previously, and is displayed on the directed location will perform. What is necessary is just to make this processing facility the configuration made to accompany the image pick-up result selection means 560.

[0109] The serial number which shows the photography control information which delivery and a magnetic disk drive 540 matched the serial number which shows the distinguished image through the cable 581 at the magnetic disk drive 540, and has been memorized is searched, and it sends to a magnetic disk 530.

[0110] From the serial number which shows the photography control information to which the magnetic disk 530 has been sent, the control information of photography is searched and processing which controls photography with delivery and a camera 500 on the camera base 510 is performed through a cable 531.

[0111] The equipment which can perform image pick-up control performed when taking the image, and the same control can be constituted only from this choosing the display image of the past image pick-up result currently displayed in the shape of a menu.

[0112] Next, the example of a configuration of the response table of the image pick-up result which image pick-up result storage / retrieval means 520 shown in drawing 6 at drawing 5 memorizes, and its identifier is shown.

[0113] This table is realizable with the rewritable storage means of RAM, a magnetic disk, etc. Moreover, it has composition equipped with a comparison means to perform predetermined comparison processing, and the selection means for choosing the specific content of storage based on a comparison result. In addition, said comparison means and selection means are realized by for example, various logical circuits, the transistor, etc.

[0114] In drawing 6, 600 shows the identifier [as opposed to / 610 / the response table of an image pick-up result and its identifier, and / 620 / the input terminal of an image pick-up result, and / 630 / the input terminal of the identifier of an image pick-up result, and / as opposed to / in the output terminal of the identifier of an image pick-up result and an image pick-up result, and 640 / the i-th image pick-up result in a table / the i-th image pick-up result in a table in 650].

[0115] This example explains the case where make [i] the i-th image pick-up result 640 into the character string which displayed the number i of a table in hexadecimals for the video signal of the visible ray for 10 seconds, and the identifier 650 of an image pick-up result among 200 and a table, and storage of an image pick-up result and retrieval are carried out.

[0116] First, an image pick-up result is minded input terminal 610, and is inputted.

[0117] The inputted image pick-up result is stored in the free area which is not yet stored in the image pick-up result in an order from the 1st of a table.

[0118] If an image pick-up result is inputted, while an image pick-up result is stored in a table, the identifier of an image pick-up result is stored in the column of the corresponding identifier of an image pick-up result.

[0119] The identifier of the stored image pick-up result is outputted through an output terminal 630.

[0120] An input of the video signal (for example, changed into the memorizable signal of digital data etc.) of the image of the visible ray for [it is 200th as a result of an image pick-up] 10 seconds stores the signal corresponding to the video signal of the visible ray for 10 seconds in the 200th column of an image pick-up result.

[0121] Two ASCII codes corresponding to a character string "c8" (what changed 200 into the hexadecimal) are stored in the column of the corresponding identifier of the 200th image pick-up result.

[0122] The stored character string "c8" is simultaneously outputted through an output terminal 630. Thereby, storage of an image pick-up result is completed.

[0123] Moreover, the identifier of an image pick-up result is inputted through an input terminal 620.

[0124] If the identifier of an image pick-up result is inputted, a table will be searched until it carries out comparison processing (said comparison means performs this processing) of the content of the column of the identifier of the image pick-up result in a table, and the inputted identifier of an image pick-up result to sequence from the 1st column and the same thing is found.

[0125] When what agreeing is found, the information on the image pick-up result of the column corresponding to the column of that identifier is outputted through ejection (said selection means performs this processing) and an output terminal 630.

[0126] An input of the character string "c8" of a hexadecimal which is the identifier of an image pick-up result

carries out comparison processing of the column of the identifier of the image pick-up result in a table in an order from the 1st with the character string "c8" into which it was inputted.

[0127] When what agreeing is found, the signal of the visible-ray image for [it is stored in the column of the image pick-up result corresponding to the column of the identifier] 10 seconds is outputted through ejection and an output terminal 630.

[0128] Thereby, an image pick-up result and its identifier can be matched and memorized in image pick-up result storage / retrieval means 520.

[0129] To say nothing of transposing to information which an image pick-up result can determine as a meaning from an identifier, such as a numeric value which has the character string of the alphabet which has the character string of a binary number, the character string of an octal number, the character string of a decimal number, and uniqueness for the character string of the identifier of the image pick-up result used by this example, the character string of a Japanese alphabetic character which has uniqueness, and uniqueness, as an identifier, it is possible to adopt various kinds of things.

[0130] For example, if the alphabetic word which has semantics in an image pick-up result as a word when an identifier is made into the character string of the alphabet can be matched and an identifier is made into a numeric value, as compared with the case where the identifier of an image pick-up result is made into a character string, the cutback of the capacity for storage of the identifier of an image pick-up result and the time amount of retrieval can be aimed at.

[0131] Moreover, although the table was used in this example, store methods, such as the list structure and cyclic-queue structure, may be adopted.

[0132] For example, if it is the list structure, modification of the sequence of an image pick-up result can be easy, or can make capacity to memorize adjustable [instead of immobilization].

[0133] Next, the configuration of the response table of the image pick-up control information which image pick-up control information storage / retrieval means 530 shown in drawing 7 at drawing 5 memorizes, and its identifier is shown.

[0134] This table is realized by the rewritable storage means of RAM, a magnetic disk, etc. Moreover, it has composition equipped with a comparison means to perform predetermined comparison processing, and the selection means for choosing the specific content of storage based on a comparison result. In addition, said comparison means and selection means are realized by for example, various logical circuits, the transistor, etc.

[0135] In drawing 7, 700 shows the identifier [as opposed to / 710 / the response table of image pick-up control information and its identifier, and / 720 / the input terminal of image pick-up control information, and / 730 / the input terminal of the identifier of image pick-up control information, and / as opposed to / in the output terminal of the identifier of image pick-up control information and image pick-up control information, and 740 / the i-th image pick-up control information in a table / the i-th image pick-up control information in a table in 750].

[0136] By this example, the control signal to the servo motor which drives a camera base required in order to rotate [i] a camera base for the i-th image pick-up control information 740 30 degrees on the azimuth right among 200 and a table, and the identifier 750 of image pick-up control information are made into the character string which displayed the number i of a table in hexadecimal, image pick-up control information memorizes, and the case where the retrieval is shown is explained.

[0137] First, image pick-up control information is inputted through an input terminal 710.

[0138] The inputted image pick-up control information is stored in the free area which is not yet stored in image pick-up control information in an order from the 1st of a table.

[0139] If image pick-up control information is inputted, while image pick-up control information is stored in a table, the identifier of image pick-up control information is stored in the column of the corresponding identifier of image pick-up control information.

[0140] The identifier of the stored image pick-up control information is outputted through an output terminal 730.

[0141] An input of the control signal to the servo motor which drives a camera base required in order to rotate the camera base which is the 200th image pick-up control information 30 degrees on the azimuth right stores the control signal (it is the storable signal of a digital signal etc.) in the 200th column of an image pick-up result.

[0142] Two ASCII codes corresponding to a character string "c8" are stored in the column of the corresponding identifier of the 200th image pick-up control information.

[0143] The stored character string "c8" is simultaneously outputted through an output terminal 730. Thereby, storage of image pick-up control information is completed.

[0144] Moreover, the identifier of image pick-up control information is inputted through an input terminal 720.

[0145] If the identifier of image pick-up control information is inputted, comparison processing of the content of the column of the identifier of the image pick-up control information in a table and the inputted identifier of image pick-up control information is carried out from the 1st column at sequence (said comparison means performs this processing), and a table will be searched until the same thing is found.

[0146] When what agreeing is found, the information on the image pick-up result of the column corresponding to the column of that identifier is outputted through ejection (said selection means performs this processing) and an output terminal 730.

[0147] An input of the character string "c8" of a hexadecimal which is the identifier of image pick-up control information carries out comparison processing of the column of the identifier of the image pick-up control information in a table in an order from the 1st with the character string "c8" into which it was inputted.

[0148] When what agreeing is found, it outputs through an output terminal 730 by making the taken-out control signal into image pick-up control information, making as ejection the control signal to the servo motor which drives a

camera base required in order to rotate the camera base stored in the column of the image pick-up result corresponding to the column of the identifier 30 degrees on the azimuth right.

[0149] If it is the information which an image pick-up result can determine as a meaning by this from identifiers, such as a numeric value which has the character string of the alphabet which has the character string of a binary number, the character string of an octal number, the character string of a decimal number, and uniqueness for the character string of the identifier of the image pick-up control information used in addition by this example which can realize image pick-up control information storage / retrieval means 530, the character string of a Japanese alphabetic character which has uniqueness, and uniqueness, what kind of thing may be used.

[0150] For example, if the alphabetic word which has semantics as a word can be matched with image pick-up control information if it is the character string of the alphabet, and the identifier of image pick-up control information is made into a numeric value, as compared with the case where an identifier is made into a character string, the capacity for storage of the identifier of image pick-up control information and retrieval time are reducible.

[0151] Moreover, although the table was used in this example, store methods, such as the list structure and cyclic-queue structure, may be adopted.

[0152] For example, if it is made the list structure, modification of the sequence of image pick-up control information can be easy, or can make capacity to memorize adjustable [instead of immobilization].

[0153] The example of a configuration of the response table of the identifier of an image pick-up result and the identifier of image pick-up control information which the means 540 corresponding to the image pick-up result-image pick-up control shown in drawing 8 at drawing 5 memorizes is shown.

[0154] This table is realized by the rewritable storage means of RAM, a magnetic disk, etc. Moreover, it has composition equipped with a comparison means to perform predetermined comparison processing, and the selection means for choosing the specific content of storage based on a comparison result. In addition, said comparison means and selection means are realized by for example, various logical circuits, the transistor, etc.

[0155] drawing 8 — setting — 800 — in the response table of the identifier of an image pick-up result, and the identifier of image pick-up control information, and 810, the identifier of an image pick-up result and the output terminal of the identifier of image pick-up control information, and 840 show the identifier of the *i*-th image pick-up result in a table, and, as for the input terminal of the identifier of an image pick-up result, and 820, 850 shows the identifier of the *i*-th image pick-up control information in a table, as for the input terminal of the identifier of image pick-up control information, and 830.

[0156] In this example, *i* among 200 and a table the identifier 840 of the *i*-th image pick-up result The "character string" which indicated the number in the response table 600 of the image pick-up result which is an identifier to the video signal of the visible ray for 10 seconds, and its identifier by the hexadecimal, moreover, the identifier 850 of image pick-up control information [required in order to rotate a camera base 30 degrees on the azimuth right] it considers as the "character string" which indicated the number in the response table 700 of the image pick-up control information which is an identifier to the control signal to the servo motor which drives a camera base, and its identifier by the hexadecimal, and matching with the identifier of an image pick-up result and the identifier of image pick-up control information is shown.

[0157] The identifier of an image pick-up result is inputted through an input terminal 810, and the identifier of image pick-up control information is inputted through an input terminal 820.

[0158] An input of both the identifier of an image pick-up result and the identifier of image pick-up control information stores the identifier of an image pick-up result and the identifier of image pick-up control information which were inputted in the free area which is not yet stored in the identifier of an image pick-up result, and the identifier of image pick-up control information in an order from the 1st of a table, respectively.

[0159] The character string which indicated the number in the response table 600 of the image pick-up result of having memorized the visible-ray video signal for [it is the identifier of the 200th image pick-up result, and the identifier of image pick-up control information] 10 seconds, and its identifier by the hexadecimal, If the character string which indicated the number in the response table 700 of the image pick-up control information which memorized the control signal to the servo motor which drives a camera base required in order to rotate a camera base 30 degrees on the azimuth right, and its identifier by the hexadecimal is inputted Each character string is stored in the column of the 200th each of the identifier of an image pick-up result, and the identifier of image pick-up control information.

[0160] The ASCII code corresponding to a character string "c8" is stored in the column of the identifier of the 200th image pick-up result.

[0161] The ASCII code corresponding to a character string "c8" is stored in the column of the identifier of the 200th image pick-up control information.

[0162] Thereby, storage of matching of the identifier of an image pick-up result and the identifier of image pick-up control information is completed.

[0163] If only the identifier of an image pick-up result is inputted, comparison processing (said comparison means performs this processing) of the content of the column of the identifier of the image pick-up result in a table and the inputted identifier of an image pick-up result is carried out to sequence from the 1st column, and a table will be searched until the same thing is found.

[0164] When what agreeing is found, the identifier of the image pick-up control information of the column corresponding to the column of the identifier of that image pick-up result is outputted through ejection (said selection means performs this processing) and an output terminal 830.

[0165] If only the identifier of image pick-up control information is inputted, a table will be searched until the same

thing finds the content of the column of the identifier of the image pick-up control information in a table, and the inputted identifier of image pick-up control information from the 1st column as compared with sequence.

[0166] When what agreeing is found, the identifier of the image pick-up result of the column corresponding to the column of the identifier is outputted through ejection and an output terminal 830.

[0167] An input of the character string "c8" of the hexadecimal which is the identifier of an image pick-up result carries out comparison processing (said comparison means performs this processing) of the column of the identifier of the image pick-up result in a table to the character string "c8" into which it was inputted in an order from the 1st.

[0168] When what agreeing is found, the character string "c8" which is an identifier corresponding to the control signal to the servo motor which drives a camera base required in order to rotate the camera base stored in the column of the identifier of the image pick-up control information corresponding to the column of the identifier 30 degrees on the azimuth right is outputted through ejection and an output terminal 830.

[0169] An input of the character string "c8" of a hexadecimal which is the identifier of image pick-up control information carries out comparison processing of the column of the identifier of the image pick-up control information in a table in an order from the 1st with the character string "c8" into which it was inputted.

[0170] When what agreeing is found, the character string "c8" which is an identifier corresponding to the signal of the visible-ray image for [it is stored in the column of the identifier of the image pick-up result corresponding to the column of the identifier] 10 seconds is outputted through ejection and an output terminal 830.

[0171] Thereby, the means 540 corresponding to image pick-up result-image pick-up control information is realizable.

[0172] Moreover, although the table was used in this example, store methods, such as the list structure and cyclic-queue structure, may be adopted.

[0173] For example, if it is made the list structure, modification of the sequence of image pick-up control information can be easy, or can make capacity to memorize adjustable [instead of immobilization].

[0174] Drawing 13 shows the example of a configuration of the response table of the positional information on the identifier of an image pick-up result for displaying and choosing predetermined data as each of the image pick-up result display means 550 shown in drawing 5, and the image pick-up result selection means 560, and the indicating equipment of an image pick-up result.

[0175] This table is realizable with the rewritable storage means of RAM, a magnetic disk, etc. Moreover, it has composition equipped with a comparison means to perform predetermined comparison processing, and the selection means for choosing the specific content of storage based on a comparison result. In addition, said comparison means and selection means are realized by for example, various logical circuits, the transistor, etc.

[0176] In drawing 13 1300 the response table of the positional information on the identifier of an image pick-up result and the indicating equipment of an image pick-up result and 1310 The input terminal of the identifier of an image pick-up result and 1320 the input terminal of the display position of the longitudinal direction of an image pick-up result and 1330 The input terminal of the display position of the lengthwise direction of an image pick-up result and 1340 The input terminal of the width of face of a display of an image pick-up result and 1350 The input terminal of the height of a display of an image pick-up result and 1360 The output terminal of the identifier of an image pick-up result, the display position of the lengthwise direction of an image pick-up result, the display position of the longitudinal direction of an image pick-up result, the width of face of a display of an image pick-up result, and the height of a display of an image pick-up result and 1370 The identifier of the i-th image pick-up result and 1380 show the positional information on the display of the image pick-up result corresponding to the identifier of the i-th image pick-up result among the table among the table.

[0177] In this example, it returns to eye left justification and the reduced visible-ray image is repeatedly displayed on it at it, whenever it exceeds five pieces five pieces at a time to the lower quadrant of the bit mapped display of 1240 dots of width of face, and 1024 dots of height in order by eye left justification in equal magnitude.

[0178] When choosing and directing the image with a mouse, i among 200 and a table and the identifier 1370 of the i-th image pick-up result The character string which indicated by the hexadecimal the number in a table 600 which is an identifier corresponding to the signal of the visible-ray image for 10 seconds, Positional information on the indicating equipment of the image pick-up result corresponding to the identifier of the i-th image pick-up result is made into the number of dots on a bit mapped display among a table, and the case where the identifier of an image pick-up result and the positional information on an indicating equipment are matched is explained.

[0179] The identifier of an image pick-up result is inputted through an input terminal 1310.

[0180] An input of all the identifiers of an image pick-up result and display-position information on an image pick-up result stores the display-position information on the identifier of an image pick-up result, and an image result that it was inputted in the free area which is not yet stored in the positional information on the identifier of an image pick-up result, and the display of an image pick-up result in an order from the 1st of a table, respectively.

[0181] The character string which indicated by the hexadecimal the number in the response table 600 which is the positional information on the 200th identifier of an image pick-up result and indicating equipment of an image pick-up result, If the longitudinal direction dot location on a display, the dot location of a lengthwise direction, lateral dot size, and the dot size of a lengthwise direction are inputted The dot value corresponding to each 200th column of the positional information on a character string and the display of an image pick-up result is stored in the 200th column of the identifier of an image pick-up result.

[0182] In addition, the dot location on a display sets (0, 0), and the lower right to (1240, 1024) for the upper left for example, on a display.

[0183] Moreover, to the display of five image pick-up results current on display, it is made the configuration which

has the pointer in which the display is shown.

[0184] Two ASCII codes corresponding to a character string "c8" are stored in the column of the identifier of the 200th image pick-up result.

[0185] The dot value 0 is stored in the column of the location of the longitudinal direction of the positional information on the 200th display of an image pick-up result. Similarly, the dot value 765 is stored in the column of the location of the lengthwise direction of the positional information on the 200th display of an image pick-up result, and the dot value 248 is stored in the column of the width of face of the positional information on the 200th display of an image pick-up result, and the dot value 255 is stored in the height column of the positional information on the 200th display of an image pick-up result.

[0186] In order to display the image of equal magnitude in the case of this example, the width of face of the positional information on the display of an image pick-up result and the column of height put in the always same value.

[0187] By the above processing, storage of matching of the positional information on the identifier of an image pick-up result and the display of an image pick-up result is completed.

[0188] When only the positional information on the indicating equipment of an image pick-up result is inputted, the content of the column of the positional information on the indicating equipment of the image pick-up result in a table. It is comparison processing (this processing) to the sequence from the thing of the inside of five images which are indicating the positional information on the inputted display of an image pick-up result by current, and a column with the smallest number. It judges whether the field which the positional information as which said comparison means carried out by carrying out, and was inputted shows is included in a field, and a table is searched until what is contained is found.

[0189] When what agreeing is found, the identifier of the image pick-up result of the column corresponding to the column of the positional information on the display screen of the image pick-up result is outputted through ejection (said selection means performs this processing) and an output terminal 1360.

[0190] Thereby, the image pick-up result display means 550 and the image pick-up result selection means 560 are realizable. That is, a means to perform a response with the identifier of an image pick-up result and the information on the display position on the display of an image pick-up image pick-up result can be constituted.

[0191] Moreover, although the table was used in this example, store methods, such as the list structure and cyclic-queue structure, may be adopted.

[0192] For example, if it is made the list structure, modification of the sequence of image pick-up control information can be easy, or can make capacity to memorize adjustable [instead of immobilization].

[0193] Drawing 9 is the explanatory view of the example of the record unit of the image pick-up result concerning this invention.

[0194] 900 and 910 are one unit which constitutes the set display 150 of the image pick-up result shown by drawing 1, 900 shows a static image, 910 shows a dynamic image, and 920 shows the pointer for directing one to choose out of an indicating [more than one]-like the set display 150 of image pick-up result shown by drawing 1 image pick-up result.

[0195] Although the static image 900 visualized for example, the visible-ray image, the X-ray picture, the infrared image, and the ultrasonic echo, they should just be single images, such as a quiescence static image, here.

[0196] Moreover, a dynamic image 910 visualizes the image of a visible ray, the image of an X-ray, an infrared image, and an ultrasonic echo, is an image picturized within some fixed time amount, such as a set of the continuous images, such as an image with a motion, or the static image picturized with the unit time interval, and should just continue on a time amount train.

[0197] In this example, a static image 900 and a dynamic image 910 are used as a visible-ray image, and the range of exposure time is carried out as an example for 5 seconds after a certain image pick-up control is performed.

[0198] When the unit of the image memorized when image pick-up control is performed is used as a visible-ray image, an image pick-up result is memorized as information on a static image, constitutes and expresses the image pick-up result display 150 which showed by drawing 1 as two or more visible-ray images 900, and presupposes that it is selectable using a pointer 920.

[0199] Consider as a visible-ray image, and after performing image pick-up control, when the range of the time amount which picturizes the unit of the image memorized when image pick-up control is performed is set as for 5 seconds, an image pick-up result It memorizes as information on the dynamic image for 5 seconds, the set display 150 of the image pick-up result shown by drawing 1 is constituted from two or more visible-ray images 910 for 5 seconds, and it displays repeatedly endlessly, and suppose that it is selectable using a pointer 920. This becomes selectable about a dynamic image.

[0200] What is necessary is to use properly the image which this displays on choosing image pick-up control, and just to constitute a system.

[0201] Namely, what is necessary is just to let the record unit of an image pick-up result be a static image, if it can distinguish what kind of image pick-up control was then performed only with a static image.

[0202] Moreover, what is necessary is just to use the unit of image pick-up record as a dynamic image, if a series of motions follow on image pick-up control and it cannot distinguish only with a static image.

[0203] Such a series of processings should just be made to be performed according to the program beforehand built in ROM with which the generalization system 100 of drawing 1 is equipped.

[0204] Moreover, it is good also as time amount after "5 seconds" which is the exposure time of the visible-ray image used by this example is directed to image pick-up control until control is completed.

[0205] In that case, exposure time may differ for every image pick-up control, and each image pick-up result which

constitutes the image pick-up result display 150 shown by drawing 1 can also show the time amount concerning image pick-up control.

[0206] Moreover, when what has extremely short time amount after image pick-up control is directed in this case until control is completed exists, according to the naked eye, a static image and a dynamic image will be intermingled.

[0207] Moreover, the image pick-up result at the time of initiation of image pick-up control of a visible-ray image and termination used by this example is good also as a set of two or more static images which express the situation of image pick-up control characteristic.

[0208] In that case, the set display 150 of the image pick-up result shown by drawing 1 will be constituted like a paper play only in a characteristic thing by the image by which it is indicated by the repeat.

[0209] It becomes easy to grasp the past image pick-up result by the above configuration.

[0210] Drawing 10 shows the example of the method of storage of the image pick-up control information concerning this invention.

[0211] 1050 and 1060 show the example of a configuration of the table 800 which matches the identifier of the image pick-up result shown by drawing 8, and the identifier of image pick-up control information, 1050 shows the example which matches and memorizes one image pick-up result to two or more image pick-up control information, and 1060 shows the example which matches and memorizes one image pick-up result to one image pick-up control information.

[0212] The identifier to the j-th image pick-up result, and 1010 and 1020 1000 [moreover,] The identifier to the image pick-up control information of the i-th of a table which matched with the j-th image pick-up result in a table, and have been memorized, and eye watch (i+1), and 1030 The identifier to the i-th image pick-up result in a table and 1040 show the identifier to the i-th image pick-up control information which matched with the i-th image pick-up result in a table, and has been memorized.

[0213] Here, the combination of the identifiers 1010 and 1020 of image pick-up control information can consider various kinds of combination, such as combining a control parameter different, respectively about control of image pick-up equipment, and combining two or more same control parameters independently.

[0214] The combination of the control parameter for making the actuation which changes the combination of the control parameter for making the actuation which shakes horizontally the combination of the control parameter for making the actuation which can consider the case where a control parameter different, respectively is combined here, for example, for example, shakes image pick-up equipment horizontally, and the actuation which shake perpendicularly perform, and image pick-up equipment, and the actuation which change the image pick-up range perform, and the image pick-up range, and the actuation change the sensibility of an image pick-up perform etc. can think.

[0215] Moreover, it is the combination of the control parameter for making the actuation which shakes the combination of the control parameter for making the actuation which combination is also considered to change the same control parameter continuously, for example, is horizontal, while shakes image pick-up equipment, and the actuation further shaken in the direction perform, and image pick-up equipment at vertical one side, and the actuation further shaken in the direction (it is easy to be natural even if it sets up a control parameter so that it may become an opposite direction) perform etc.

[0216] The combination of two or more control parameters of the same kind is also considered. Image pick-up equipment to a certain horizontal one side moreover, with a swing The combination of the control parameter for making the actuation to which the image pick-up range is expanded, and the actuation to which the image pick-up range is further expanded in the direction with a swing perform, and image pick-up equipment to a certain horizontal one side with a swing It is the combination of the control parameter for making the actuation to which the image pick-up range is expanded, and the actuation which reduces the image pick-up range to a horizontal opposite direction with a swing perform etc.

[0217] The combination of two or more control parameters from which a class differs is also considered. Horizontally image pick-up equipment moreover, with a swing Changing the combination of the control parameter for making the actuation shaken perpendicularly and the actuation which changes the image pick-up range perform, and the range of the actuation which shakes image pick-up equipment horizontally, and an image pick-up It is the combination of the control parameter for making the actuation which shakes image pick-up equipment perpendicularly perform etc., changing the sensibility of the actuation which shakes image pick-up equipment horizontally further while changing the combination of the control parameter for making the actuation which shakes image pick-up equipment perpendicularly perform, and the image pick-up range, and an image pick-up.

[0218] Moreover, it cannot be overemphasized that three or more image pick-up control information may be combined by preparing two or more identifiers of image pick-up control information in addition to the identifiers 1010 and 1020 of image pick-up control information. Moreover, the identifier 1040 of image pick-up control information supports each of the above-mentioned image pick-up control information identifiers 1010 and 1020.

[0219] In this example, it is considering as the configuration which matches the image pick-up control information identifier in the case of changing two different control parameters for the configuration 1050 of a table independently about control of image pick-up equipment, respectively, and the identifier to the image pick-up result from initiation of these two control-parameter modification to termination, and is memorized.

[0220] Image pick-up equipment is used as the camera which photos a visible image. And the identifier 1010 of image pick-up control information The identifier of the image pick-up control information for making the actuation which shakes a camera at the horizontal right 10 degrees perform, The identifier of the image pick-up control information for making the actuation which zooms in the identifier 1020 of image pick-up control information twice

perform, Let the identifier 1000 of an image pick-up result be an identifier to the visible image information which will be photoed by the time it is shaken at a camera by the horizontal right 10 degrees and it zooms in twice [further].
 [0221] Moreover, it is considering as the configuration which matches the image pick-up control information identifier in the case of changing one control parameter for the configuration 1060 of a table independently about control of image pick-up equipment, and the identifier to the image pick-up result from initiation of modification of the control parameter to termination, and is memorized.

[0222] Image pick-up equipment is used as the camera which photos a visible image. And the identifier 1040 of image pick-up control information The identifier of the image pick-up control information for making the actuation which goes horizontally and shakes a camera at the right 10 degrees perform, Let the identifier of the image pick-up control information for making the actuation which zooms in the identifier 1020 of image pick-up control information twice perform, and the identifier 1030 of an image pick-up result be the identifiers to the visible image information which will be photoed by the time it is horizontally shaken at a camera by the right 10 degrees at the beginning of a swing.

[0223] Thus, based on the content of storage in the table which matches and memorizes the identifier of an image pick-up result and the identifier of image pick-up control information which were constituted, as drawing 1 showed, it considers as the configuration which performs the image pick-up result display 150.

[0224] For example, the display of the image pick-up result corresponding to the identifier 1000 of an image pick-up result in the case of a table 1050 If a camera goes, it is shaken at the right 10 degrees, it becomes a visible image until it zooms in twice [further] and this image is chosen The image pick-up control information corresponding to the identifier 1010 of image pick-up control information which is matched with the identifier 1000 of an image pick-up result and which shakes a camera at the horizontal right 10 degrees, The image pick-up control information corresponding to the identifier 1020 of image pick-up control information which zooms in twice will be chosen.

[0225] Moreover, for example, in the case of a table 1060, when a camera goes, and the display of the image pick-up result corresponding to the identifier 1030 of an image pick-up result is shaken at the right 10 degrees, and serves as a visible image of until and this image is chosen, the image pick-up control information corresponding to the identifier 1040 of the image pick-up control information matched with the identifier 1030 of an image pick-up result which shakes a camera at the horizontal right 10 degrees will be chosen.

[0226] Thereby, only the number of arbitration can match the image pick-up control information corresponding to one image pick-up result, and a series of image pick-up control information can be matched with one image pick-up result. And by choosing one image, two or more image pick-up control information will be chosen, and predetermined actuation will be performed based on the selected image pick-up control information.

[0227] Drawing 11 shows an example of the executive state rendering approach concerning this invention.

[0228] Image pick-up equipment and 1110 1100 an image pick-up control unit and 1105 The generalization equipment which has the function in which 1120 for an image pick-up generalize management of an image pick-up result, image pick-up control, etc., and 1130 A display, and 1140 and 1145 the display of a current image pick-up result and 1150 The set display of the past image pick-up result, and 1160, 1170, 1180 and 1190 the past — an image pick-up — a result — having reduced — although — a set — a display — 1150 — constituting — each — an image pick-up — a result — a display — 1195 — the past — an image pick-up — a result — having reduced — although — the pointer for [of the set display 1150] choosing one certain image pick-up result from inside — it is .

[0229] The object for an image pick-up can consider various kinds of bodies. Moreover, image pick-up equipment 1110 is realized by the CCD camera, and generalization equipment 1120 is realized by electron devices, such as CPU, ROM (the program for performing predetermined processing is built in), RAM, and various kinds CMOS. Moreover, an indicating equipment 1130 is realized by CRT, an EL display, the liquid crystal display, etc. The image pick-up control unit 1110 can be mentioned above for example, realized with drawing 1 and the same configuration as 180.

[0230] Moreover, the image pick-up result when the display 1140 of a current image pick-up result expanded and picturizes the object 1105 for an image pick-up, and the current image pick-up result 1145 show the image pick-up result at the time of reducing and picturizing the object 1105 for an image pick-up.

[0231] The display of the image pick-up result at the time of reducing the display 1160 of the past image pick-up result, and picturizing, and the display 1170 of the past image pick-up result The control state of that image pick-up equipment when picturizing the image pick-up result of the display 1160 of the past image pick-up result Image pick-up equipment is moved upwards from (the value of the control parameter at that time etc. is specifically meant). The display of an image pick-up result at the time of expanding and picturizing the object for an image pick-up, and the display 1180 of the past image pick-up result The control state of that image pick-up equipment when picturizing the image pick-up result of the display 1170 of the past image pick-up result Image pick-up equipment is moved to the right from (the value of the control parameter at that time etc. is specifically meant). The display of an image pick-up result at the time of expanding the object for an image pick-up further, and picturizing it, and the display 1190 of the past image pick-up result It is the display of the image pick-up result at the time of moving downward and picturizing image pick-up equipment from the control state (the value of the control parameter at that time etc. specifically being meant) of that image pick-up equipment when picturizing the image pick-up result of the display 1180 of the past image pick-up result.

[0232] By having moved in too much amplification actuation and a rapid perpendicular direction, when photoing the object 1105 for an image pick-up, having used image pick-up equipment 1110 as the camera for visible-ray images, and changing the direction of a camera, the location of a camera, and the scale factor to photo in this example When it is missed where [for photography] is photoed, the processing which supports recovering the condition of the

image photoed [where is photoed and] to the condition which can enough be distinguished is shown.

[0233] First, it shall be which part for an image pick-up is photoed by considering as the image pick-up result picturized when the control parameter of a camera was set up so that the complete view for photography may be reflected in the image pick-up result 1160, and displaying this image result on a screen in the condition which can enough be distinguished.

[0234] Next, the photography result 1170, gathering the photography scale factor of a camera from the control state (specifically, the value of the control parameter at that time etc. is meant) of the camera which photoed the image 1160 The image pick-up result for [which was picturized when a camera was moved upwards] photography shall be displayed, and it shall be [where is photoed and] in the condition that it can distinguish to some extent, from the circumstances of the control operation of the camera by the operator etc.

[0235] Moreover, even if the photography result 1180 displays the image pick-up result for [which was picturized when a camera was moved upwards, it moved to the right and the photography scale factor of a camera was further gathered from the control state of the camera which photoed the image 1170] photography and takes into consideration the circumstances of the control operation of the camera by the operator, it shall be in a very difficult condition where it distinguishes is photoed.

[0236] Furthermore, the photography result 1190 shall be in the condition that it cannot distinguish at all, about where is photoed from the control state of the camera which photoed the image 1180 by displaying the image pick-up result for [which was picturized when a camera was moved greatly downward] photography.

[0237] Moreover, the indication 1140 of the present photography result is given the photoed image based on the control parameter in the event of the photography result 1190 being recorded.

[0238] A change of the control parameter of a camera would be made so that the image pick-up result shown in the displays 1160, 1170, 1180, and 1190 of a photography result might be recorded in order, and the display of the present photography result would be the condition shown in display 1140, i.e., the condition that it cannot distinguish where is photoed.

[0239] If the image 1160 which can distinguish thoroughly where is photoed is chosen here from the images set on display [1150] which reduced the past photography result The image pick-up control information of a camera which matched with the image 1160 and has been memorized is sent to the camera base 1110, a camera is controlled corresponding to said image pick-up control information, and it carries out by performing recovery from losing sight as [project / the photography image 1145 which can distinguish where is photoed].

[0240] Image pick-up control is performed by this, looking at a photography result, and it becomes possible to support recovery of the image picturized by image pick-up equipment to the condition which can be distinguished [where is picturized and] from the condition to which distinction of where is picturized by image pick-up control of too much amplification, modification of the rapid image pick-up direction, an image pick-up location, and the image pick-up range, etc. became impossible.

[0241] Moreover, also when it becomes impossible to distinguish where is photoed by considering image pick-up control of migration of the camera mentioned above, modification of a photography scale factor, etc. as image pick-up control of closing motion of drawing of a camera, and a photography result's becoming bright too much by closing motion of too much drawing, or becoming dark too much, it is needless to say in the ability to apply in this invention.

[0242] In this case, although where is photoed, it enables it to perform photography with the brightness which can be distinguished by making the image of the brightness which can be distinguished a selectable configuration.

[0243] Image pick-up control can be performed by this, looking at a photography result, and the image picturized by image pick-up equipment from the condition to which distinction of where is picturized became impossible by image pick-up control of modification of the set point over too much image pick-up equipment etc. to the condition which can be distinguished can be recovered.

[0244] In selection of the camera image of the displayed past shown by this example, where is photoed may choose the displays 1170 and 1180 which are the images located in the intermediate state of the display 1160 of the image which can be distinguished thoroughly, and the display 1190 of the image which cannot be distinguished at all.

[0245] In this case, image pick-up control can be resumed from the intermediate actuation in a series of image pick-up control action, without returning the control state of image pick-up equipment to an initial state thoroughly.

[0246] Drawing 12 shows the outline of the configuration of the plant supervisory equipment concerning this invention.

[0247] The camera for a monitor and 1220 the device of the plant whose 1200 is an object for a monitor, and 1210 The bearing of the exposure axis of a surveillance camera 1210, a camera station, The camera base for controlling the various set points, in order to demonstrate the function which cameras, such as a photography scale factor, have and 1230 [or] The generalization equipment which has the function to generalize management for management of an image and control of camera actuation, and 1240 The set display of the monitor image picturized by matching the display for graphic display, and 1250 and 1255 with a current monitor image, and matching 1260 with the past control action and 1292 show the pointer for choosing a certain image pick-up result out of the set display 1260 of the past photography image.

[0248] The plant which is an object for a monitor can consider various kinds of plants, such as power and nuclear electric power generation. Moreover, the camera 1210 for a monitor is realized by the CCD camera, and generalization equipment 1230 is realized by electron devices, such as CPU, ROM (the program for performing predetermined processing is built in), RAM, and various kinds CMOS. Moreover, the display 1240 for graphic display is realized by CRT, an EL display, the liquid crystal display, etc. The camera base 1220 can be mentioned above for example, realized with drawing 1 and the same configuration as 180.

[0249] The current photography image 1250 shows the image pick-up result at the time of expanding and photoing the object 1200 for photography, and the current photography image 1255 shows the image pick-up result at the time of reducing and picturizing the object 1200 for photography.

[0250] The display 1291 of the past photography image the display of the image at the time of making small the image pick-up scale factor of a camera, and picturizing it, and the display 1270 of the past photography image From the control state of the camera when picturizing display 1291 currently displayed as a past photography image The display 1280 of what displayed the image when having moved the camera upwards, enlarging the image pick-up scale factor of a camera, and photoing it, and the past photography image A camera is moved downward from the control state of the camera when picturizing display 1270 currently displayed as a past photography image. The display 1290 of what displayed the image when picturizing an object, and the past photography image displays the image when gathering the magnifying power of a camera further and picturizing it from the control state of the camera when picturizing display 1280, currently displayed as a past photography image.

[0251] In the plant monitor operation which supervises plant equipment while controlling actuation of a surveillance camera by this example based on image pick-up control information of a surveillance camera, such as the image pick-up direction, an image pick-up location, and an image pick-up scale factor Image pick-up control information, such as the image pick-up direction of a surveillance camera, an image pick-up location, and an image pick-up scale factor, rapidly Or by changing substantially explains supporting recovering an executive state even in the condition which where a monitor part is can distinguish from the condition to which distinction of where a current monitor part is became impossible.

[0252] Suppose that photography control was performed so that the photography result by the surveillance camera 1210 might become sequence with the displays 1291, 1270, 1280, and 1290 of the past photography image, the current monitor image became like the image of display 1250, and it changed into the condition which where is photoed cannot distinguish by controlling actuation of the camera base 1220.

[0253] By in this case, the thing for which the set display 1260 of the past photography image is displayed on a display 1240, a pointer 1292 is used, and where is photoed chooses the display 1291 of the image which can be distinguished thoroughly The event of the image shown by the display 1291 of the image picturized in the past being photoed, Image pick-up control information, such as a location of a camera base, is sent to a camera base, actuation of a camera base is controlled based on said image pick-up control information, a camera will be in the condition which can picturize the image which can be distinguished thoroughly, and a display of an image as shown in display 1255 will be enabled again.

[0254] Thereby, looking at the graphic display of a surveillance camera, image pick-up control of a surveillance camera can be performed, and the image pick-up image by the surveillance camera can be recovered even from the condition to which distinction of where is supervised by change of photography parameters, such as too much amplification and modification of rapid bearing of the exposure axis, a camera station, and photographic coverage, became impossible to the condition which can be distinguished.

[0255] Moreover, where is photoed may choose the displays 1270 and 1280 of the image located in the intermediate state of the display 1291 which displayed the image which can be distinguished thoroughly, and the display 1290 which displayed the image which cannot be distinguished at all.

[0256] In this case, monitor operation can be again started from the middle in a series of monitor operation, without redoing the monitor operation of a plant thoroughly from an initial state.

[0257] As mentioned above, according to this invention, the control state of the image pick-up equipment at the time of the image pick-up being performed can be reproduced only by choosing the past image pick-up result, the control parameter at that time is used, required control is performed, and it becomes possible to obtain the same image pick-up result as that time.

[0258] By moreover, the thing which a field of view changes rapidly, or the image picturized too much expands and reduces by modification of a control parameter in case it picturizes changing control parameters, such as the image pick-up direction and image pick-up range, and the image pick-up result is supervised When it is missed where a current monitor part is, only by choosing the image pick-up result which can distinguish a monitor part among the past image pick-up results The past suitable control parameter can be called and it becomes possible by performing suitable image pick-up control based on the control parameter concerned to carry out a screen display of the suitable image picturized by image pick-up equipment from the losing-sight condition of a monitor part.

[0259]

[Effect of the Invention] According to this invention, referring to the past image pick-up result, image pick-up equipment can be controlled by dialogic operation, and a desired image can be reproduced.

[0260] Moreover, even if losing sight of the object monitor part by the abrupt change of the image pick-up field of view accompanying the abrupt change of an image pick-up equipment location to an image pick-up object and the rapid zoom etc. occurs, it becomes possible to picturize and carry out a screen display of the suitable image with image pick-up equipment.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram of the image pick-up control means concerning this invention.

[Drawing 2] It is the functional block diagram of the image pick-up control means concerning this invention.

[Drawing 3] It is the functional block diagram of the image pick-up control storage section.

[Drawing 4] It is the functional block diagram of the image pick-up result storage section.

[Drawing 5] It is the functional block diagram of the image pick-up control means concerning this invention.

[Drawing 6] It is the block diagram of image pick-up result storage / retrieval means.

[Drawing 7] It is the block diagram of image pick-up control storage and a retrieval means.

[Drawing 8] It is the block diagram of the means corresponding to an image pick-up control-image pick-up result.

[Drawing 9] It is the explanatory view of the image pick-up result unit assignment concerning this invention.

[Drawing 10] It is the explanatory view of the image pick-up control unit assignment concerning this invention.

[Drawing 11] It is the explanatory view of the image pick-up condition recovery exchange approach concerning this invention.

[Drawing 12] It is the explanatory view of actuation of the plant supervisory equipment which is the application of this invention.

[Drawing 13] It is the explanatory view of the table which matches the identifier of an image pick-up result, and the positional information on the indicating equipment of an image pick-up result.

[Description of Notations]

100 [— A mouse, 160 / — A pointer, 170 / — A camera, 180 / — Camera base,] — A generalization system, 110 — The display for visible graphic display, 120 — A keyboard, 130

[Translation done.]

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DRAWINGS

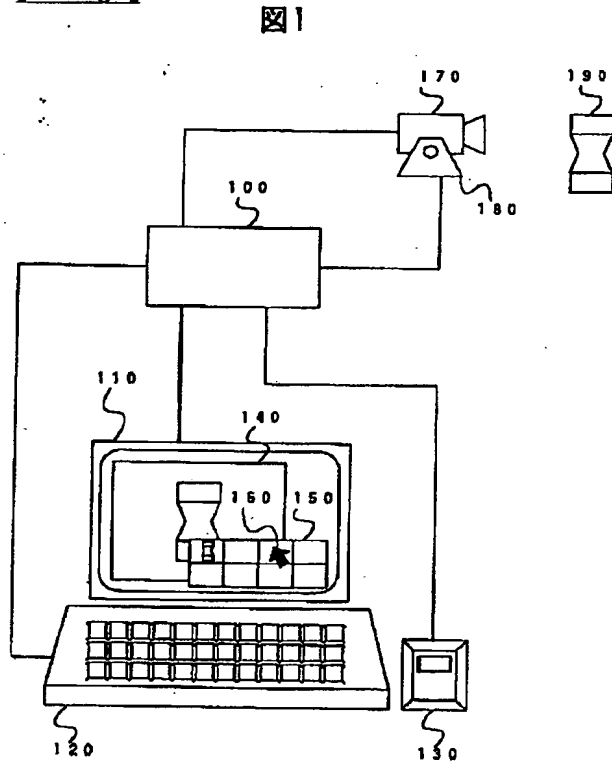
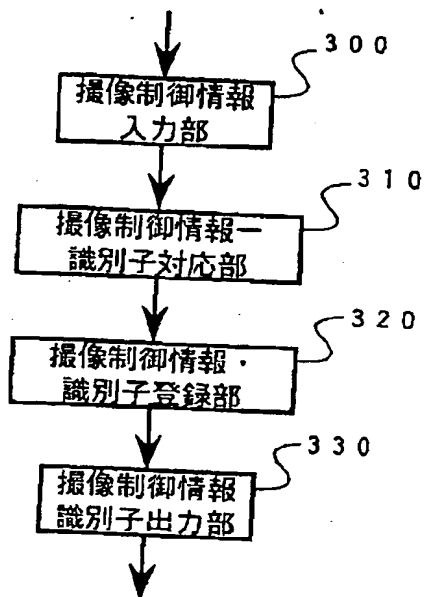
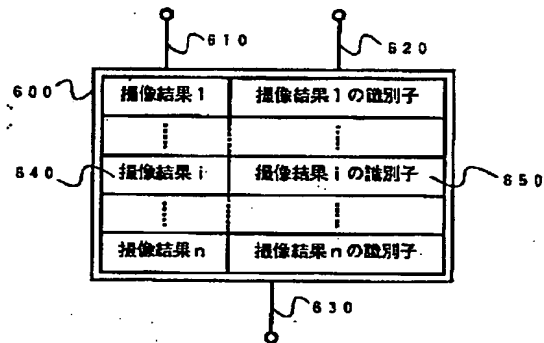
[Drawing 1]**[Drawing 3]**

図3



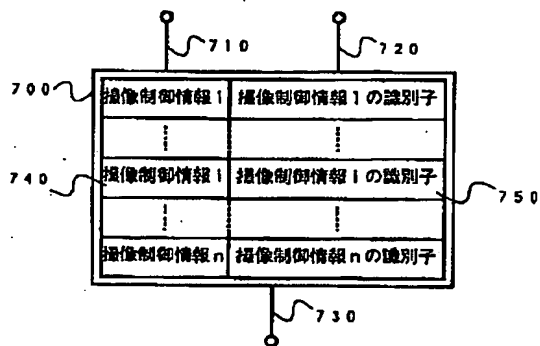
[Drawing 6]

図6



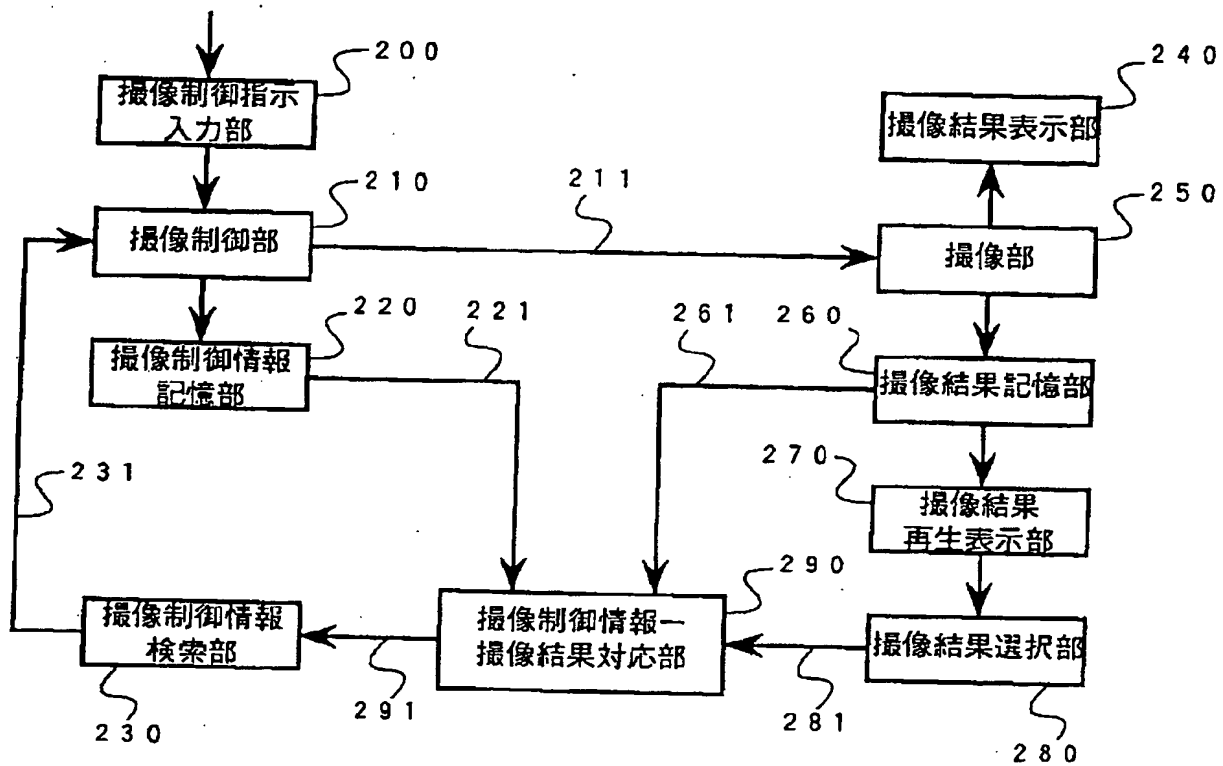
[Drawing 7]

図7



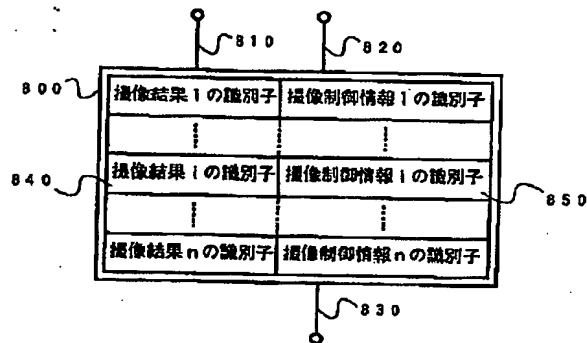
[Drawing 2]

図2



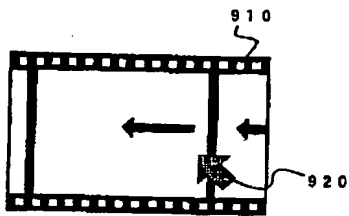
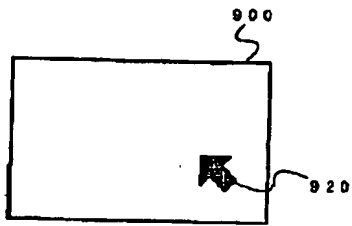
[Drawing 8]

図8



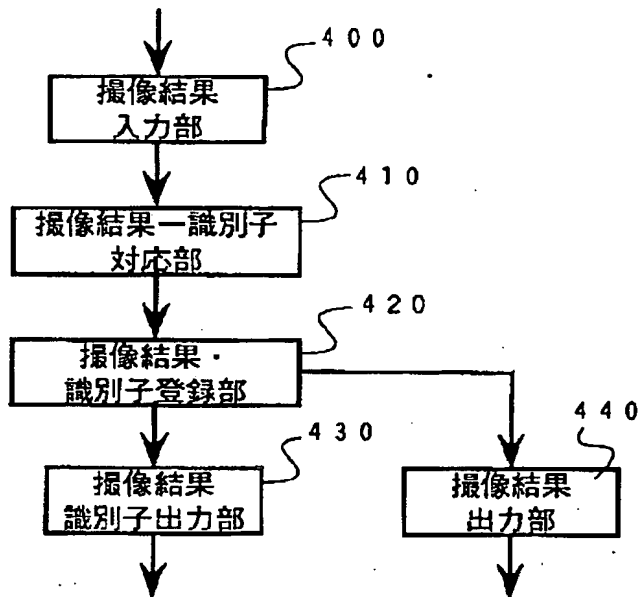
[Drawing 9]

図9



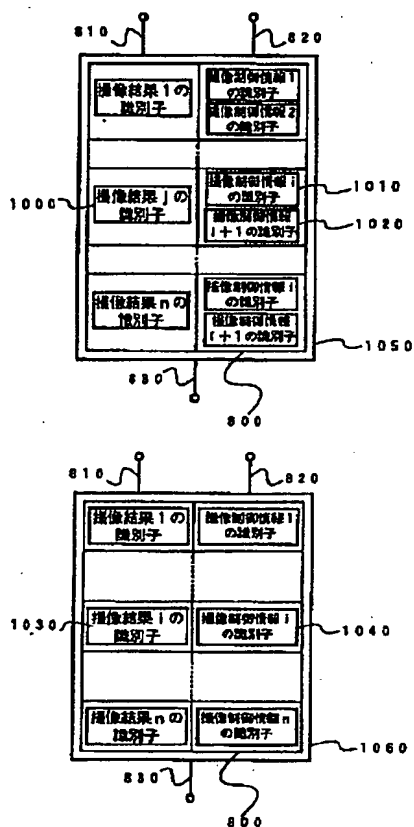
[Drawing 4]

図4



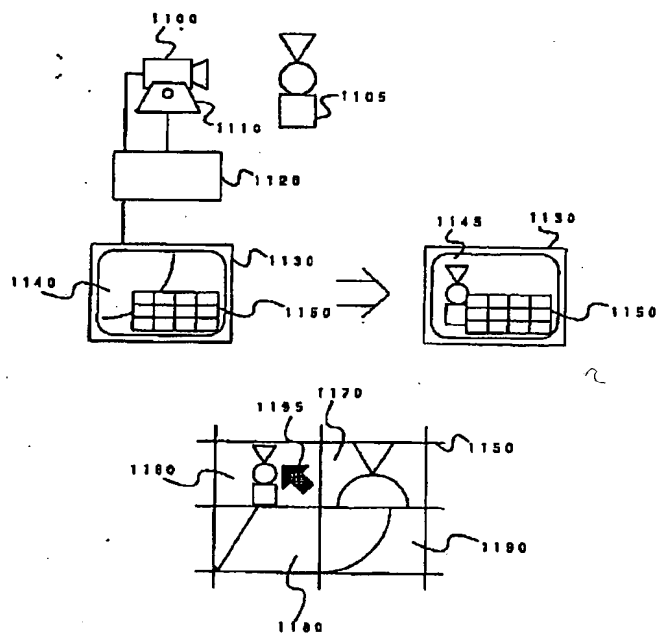
[Drawing 10]

図10



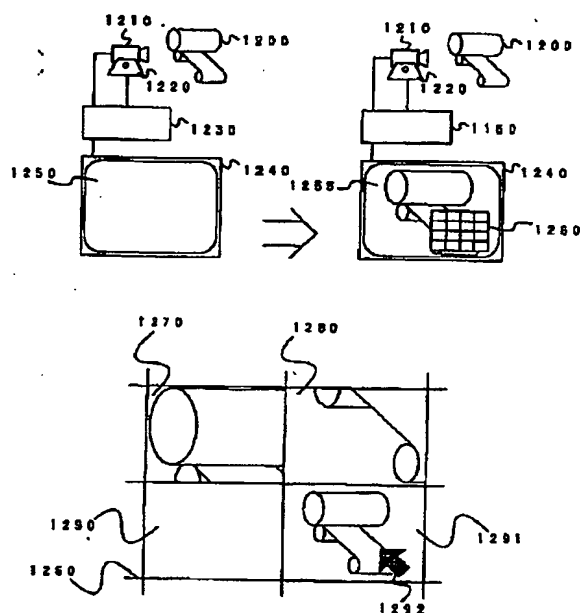
[Drawing 11]

図11



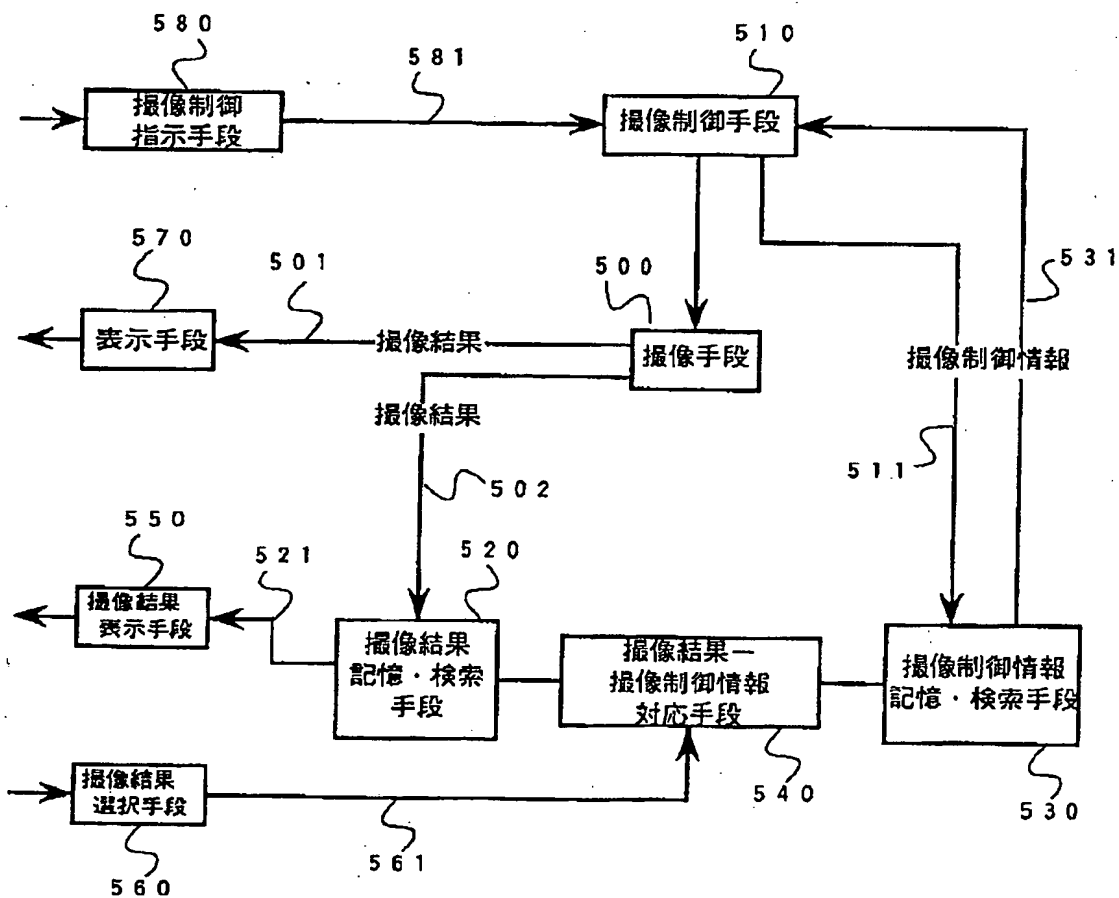
[Drawing 12]

図12



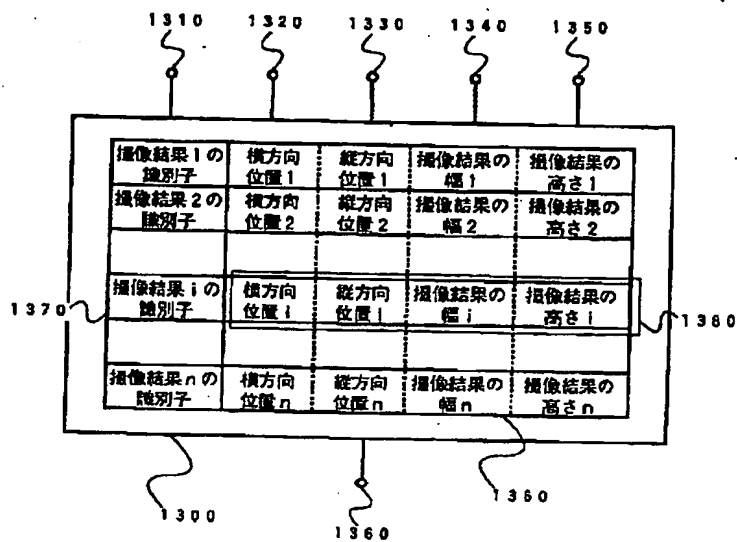
[Drawing 5]

図5



[Drawing 13]

図13



[Translation done.]